

MONOGRAM

Close-Up 5



TAIFUN



Bf 108 B-1 over the Alps

How does one describe a thoroughbred when it comes to airplanes? What standards could possibly be used to measure such qualities in an airplane? Are the qualities innate or are they acquired? Both subjective and objective data provide the answers.

Distinguishing between technical achievement and nostalgia is not always easy. However, without question, the eminently graceful Messerschmitt 108 has more than stood the test of time. It has become a legend in its own right. It has stimulated imitation and, nearly a half century later, is still to be seen in the sky. Highly prized by their enthusiastic owners, they are frequent

guests of airshows around the world. Some are maintained as investments since their fifteen thousand dollar price tags of 1938 could hardly touch one today. Indeed, from any standpoint the Taifun (Typhoon) was, and still is, one of the most famous and sought after aircraft ever created.

Readers who are familiar with German aeronautics will recognize our preference for designating the Messerschmitt 108 as the Bf 108 in place of the equally appropriate Me 108. Most German documents dating from the pre-war days identify the design as the Bf 108 and it is this precedent that we choose to follow though many wartime documents refer to the aircraft as the Me 108.

By necessity this report focuses on the German Taifun (Typhoon) to the exclusion of postwar production and development undertaken in France. Although we recognize that these activities are an important and integral part of the total picture, it must be appreciated that their inclusion would have required a publication twice the size of this report.

The enthusiastic assistance and support of several persons was of great importance throughout the preparation of this essay. Special recognition must go to two in particular. Frank Hartman and Willy Radinger unselfishly provided

the bulk of the photographs selected from their own sizable collections. Additional help was freely provided by several other dedicated historians including Ferdinando D'Amico, Trevor W. Broughton, Ferenc Kovács, J. Richard Smith, Kenneth S. West and Arthur A. Williams.

Finally, the superlative artwork of Robert D. Migliardi and Graham Wragg added that final touch so necessary for a sense of perspective.

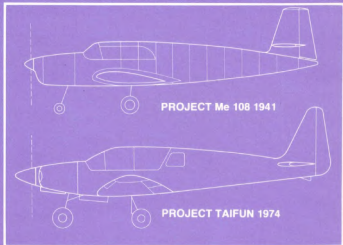
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- All line drawings by Robert D. Migliardi
- Color drawings by Graham Wragg
- Back cover design: Bavarian Aircraft Company Monogram

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Monogram Aviation Publications
625 Edgebrook Drive
Boylston, Massachusetts 01505, U.S.A.
Library of Congress Catalog Card Number 75-22741
ISBN Nr. 0-914144-05-7
Printed in the United States of America by
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Preface

Development of the Bf 108 did not end with the transfer of production to France. In 1941 the Messerschmitt design office had drawn up plans for a four-seat development of the Taifun (shown right) featuring a nosewheel undercarriage. This project, as transferred to German occupied France, was developed into the Me 208 by SNCA du Nord. Only two prototypes, the Me 208 V1 and Me 208 V2, were completed prior to Germany's withdrawal. Although outside the scope of this report, it must be said that this design was essentially a new aircraft of increased size and weight. In 1974 serious consideration was given to revival of the Taifun by a skilled group of dedicated designers and pilots, including the late Professor Messerschmitt, Ludwig Bölkow and Mano Ziegler. Taifun Flugzeugbau GmbH was established at Weiden, but as of 1979 the plan remains only a project.





TAIFUN

Forty-four years ago, on August 13, 1935, a talented woman pilot flew a tiny all metal lightplane from Gleiwitz to Constantinople and back to Berlin in one day, a distance of 2,230 miles (3,568 km). The round trip took a mere 13¼ hours. Ely Beinhorn not only made a name for herself by this remarkable achievement, but she also gave the equally remarkable airplane the name Taifun (Typhoon) which was to stick with it for the rest of its career. Designed and built by the Bayerische Flugzeug Werke AG (Bavarian Aircraft Com-

By Thomas H. Hitchcock

pany), the Taifun began its incredible career as an inauspicious export design! Almost a half century later, Taifuns are still to be seen in the skies over two continents, truly an enviable record for any airplane!

The history of the Taifun is a colorful one. It was designed to be versatile enough to serve a wide range of needs in both peace and war.

On May 1, 1933, after two years of bankruptcy, the firm BFW A.G. was reopened under the direction of 33 year old Willy Messerschmitt. At this time only eighty-two employees were on hand and, unlike many of the other larger aircraft companies, a totally new beginning had to be made following the depression years. At this time, too, Hitler's new government was firmly in power. The position of Secretary of State of the Air Ministry was taken by the former director of Deutsche Lufthansa, Erhard Milch. Following Messerschmitt's and Milch's quarrel over the acceptance of

Messerschmitt's M 20, the two had developed a mutual dislike for one another. Now that Milch was in the position of authority it was his intention to ignore Messerschmitt at every opportunity. Consequently, this period was especially difficult for BFW A.G. particularly in its relations with another aircraft manufacturer, Ernst Heinkel. Milch had ordered Messerschmitt to produce a mere twelve Heinkel He 45c aircraft under license but virtually prohibited Messerschmitt representatives access to the aircraft they were to build! In view of this situation, Messerschmitt's Finance Director

Rakan Kokothaki traveled to Bucharest, Rumania in June 1933 to secure a contract for the development of a light single-engined transport. This contract enabled the BFW company to stay in business with a small development office and prevented the loss of the last few good designers.

Interestingly, this contract also forced the RLM's¹ Technical Office to extend further

¹ RLM - Reichsluftfahrtministerium/ State Aviation Ministry



work to Messerschmitt, albeit reluctantly. The RLM expressed dismay that Messerschmitt had sought foreign markets at a time when great recovery programs were underway at home. Messerschmitt replied that he had to take his talents abroad since the RLM had not bothered to assign development commissions to his firm. The upshot of the confrontation was the awarding of a development contract by the RLM to Messerschmitt for a new single seat fighter, the Bf 109. However, the RLM stipulated that production contracts for the new fighter would not be forthcoming! This was not the only instance involving Messerschmitt where the authorities were flying a reciprocal course to reality!

In addition to its decision to allow Messerschmitt to develop the Bf 109, the RLM made a last minute judgment to participate in the fourth *Challenge de Tourisme International*. As in years before, Messerschmitt was ordered to design and manufacture an entry conforming to the conditions of the contest.

Some months earlier Messerschmitt had initiated design studies for a new single-engined trainer known as the M 37 which he had hoped to market through the Rumanians. Now that he had work at home, mat-

ters took a turn for the better. Assisted by his new chief engineer, Walter Rethel, Messerschmitt soon had the important characteristics of the M 37 finalized, which by this time received the official RLM designation Bf 108, in conformity with the new comprehensive designation system then being introduced. The essential requirements for the 1934 *Challenge de Tourisme* were easily within the M 37's design, consequently, Messerschmitt lost little time in formulating his entry.

In June 1934 the first example of the as yet un-named Taifun took to the air. Designated **Bf 108A** and bearing the civil registration D-IBUM, the first prototype displayed thoroughbred qualities from the beginning. Work on the remaining five aircraft, designated **Bf 108A**, proceeded quickly. Subsequently known as the Bf 108 V1, the first prototype was put through its paces at Rechlin where the Luftwaffe evaluated most of the new types then being considered for production. What the Luftwaffe discovered in the Bf 108 was a remarkable little airplane which could sustain flight at only 38 mph (61 k/hr) while offering close to 186 mph (300 k/hr) on the top end.

Six of the Bf 108A's were delivered to the German team for the fourth *Challenge in-*

cluding: D-ILIT ¹¹, D-IZAN ¹², D-IMUT ¹⁴ (number 13 was not used), D-IGAK ¹⁵, D-IJES ¹⁶ and D-IBUM. The team consisted of Theo Osterkamp (team captain), Otto Bindlinger, Baron von Dungen, Carl Francke, Werner Junck, Fritz Morzik and Hans Seidemann. Soon after training flights began, Baron von Dungen piloting the Bf 108A, D-IBUM, suffered a fatal crash, possibly resulting from improper use of the unusual wing spoilers. Team captain, Osterkamp, immediately voiced his protest against the Bf 108 demanding the remaining aircraft to be withdrawn. However, Osterkamp's objections were overruled by Major Fritz Loeb of the RLM's Technical Office, and after ailerons had been hurriedly fitted in lieu of the spoilers, the remaining 108's flew in the contest as planned. Later that day, because of Osterkamp's behavior, Major Loeb accompanied by Herr Seiler flew to Berlin to ask Milch to relieve Osterkamp. Osterkamp was not a figure to be taken lightly. He was one of the very few who had become an ace in WW I, winning the "Blue Max", and in WW II winning the Knights Cross. Well liked by almost everyone, he eventually rose to the rank of Generalleutnant within the Luftwaffe.

For the German team the contest was anything but successful. Osterkamp came in



Left: Four views of D-ILIT, a Bf 108 A-1 carrying the number 11 on its nose together with the circular emblem of the 4th *Challenge de Tourisme* at the cabin. Note the unusual wing spoilers in place of conventional ailerons. Right: Close-up of team captain Theo Osterkamp's Bf 108 A-1 being serviced for takeoff number 24 from the Prague-Kieby airfield. Note the VDM three-blade prop common to early Taifuns.



fifth, flying D-IMUT, Junck sixth in D-IJES and Francke showed a poor tenth in D-IGAK. Seidemann flew a Fieseler Fi 97 to third place behind two Polish pilots flying RWD-9's. However, it must be stated that the rules of the contest favored the lighter wood and canvas entries over the heavier but faster Bf 108.

The Bf 108A was a two-seat, all-metal, low wing monoplane with outward-retracting main wheels. Powered by a 225hp V-8 Hirth Hm 8U driving a metal VDM variable-pitch, three-bladed propeller, the Bf 108A offered exceptional flying qualities. One of the A-series aircraft was subsequently fitted with a 220 hp straight 6 Argus As 17B (D-IGAK) for comparison purposes. In 1935 Messerschmitt received several production contracts involving license manufacture of other aircraft products, including a production contract for 32 Taifuns. In November 1935 the improved B-series was introduced. The three pre-production Bf 108 B-0's included: D-IAJO, D-IJON and D-IJES, the last mentioned machine having been built originally as a Bf 108A but later brought up to B-standards expressly for Ely Beinborn. Once again the powerplant for the B-0 series was the Hirth Hm 8U, but the full production Taifun, Bf 108 B-1, was slated to receive the advanced, but never to be built, HM 502B. This inverted V-8, a development of the successful HM 8U, was designed to deliver 360 hp for takeoff and 240 hp for cruise. Since development of this engine was halted, Messerschmitt turned to the Argus firm for a replacement. Thus, production Bf 108 B-1's

received the readily available, but less powerful, Argus AS 10 C-3. This reliable engine, an inverted V-8 developing 240 hp for takeoff, drove a fixed-pitch two-bladed wooden Schwarz prop. Later production Bf 108 B's were fitted with the Me P 7 variable-pitch prop assembly as standard equipment.

The Bf 108 B-1 full production series differed in several respects from the earlier models. It was larger overall, fitted with a revised canopy, tailplane and wing. A tail wheel replaced the skid, while the undercarriage track was slightly reduced. The wing dispensed with the full span slots and flaps and incorporated a more conventional slotted aileron with reduced flap. Construction of the Taifun was highly advanced and quite original. Stressed duraluminum was used throughout. The fuselage employed not only countersunk rivets to reduce drag, but also a unique forward lip at each section seam to control drag. Thus, instead of a continuously smooth surface, the fuselage in effect contained a series of "steps" with each succeeding aft section. In theory, these "steps" directed the airflow to hug and eddy against the surface rather than to be simply spilled along the fuselage.

The main undercarriage attachment points were located on the fuselage in place of the wings. This arrangement allowed for a substantial weight savings while permitting greater landing loads. Of course, it also necessitated a narrow wheel track with its obvious limitations. Main wheel tires, manu-

factured by Metzeler, were of the 545 x 150 variety, while the tail wheel was 260 mm in diameter.

The wing of the first prototypes was highly unorthodox. In place of the conventional ailerons, small spoilers were attached outboard of the full span flaps. Additionally, the leading edge of the wing utilized full-span retractable Handley-Page-Lachmann slots. The wing (NACA 2431) was adjustable to rotate along the fuselage for transport and storage. A landing light usually was contained in a teardrop-shaped fairing located under the port wing. Navigation lights were located in the wings and within the rubber.

Production of the Bf 108 B-1 began at Regensburg during the last weeks of 1935. In 1936 Hans Seidemann who had earlier protested the viability of the Taifun with Theo Osterkamp, piloted a Taifun in the Winter Olympics at Garmisch-Partenkirchen.

Otto Bindlinger gained distinction by flying the sole example of the Bf 108 C-1 to Sweden with film of the 1936 Olympics completing 13,600 mi (21,600 km) without incident. This prototype was fitted with a 160 hp Siemens Sh 14 A-4 radial engine and was similar to the B-series in most other respects. Carrying the civil registration letters, D-IELE, the C-series prototype was later re-engined with the As 10 C-3 following the decision to discard the underpowered radial engined Taifun.



One of the few Bf 108 B-0 preproduction machines demonstrates its unusual wing folding mechanism. Unlike production versions, this aircraft retained the three-bladed prop of the earlier A series.

On June 25, 1936, a Bf 108 B-0, D-IONO, was carried in the Zeppelin Hindenburg, LZ-129, across the Atlantic to South America. Pilot Otto Bindlinger gained considerable publicity for his flights in this Taifun over the Andes.

In February 1937 Elly Beinhorn placed second in the *International Circuit of the Oases* race in Egypt flying a Bf 108 B-1. During 1937 Frau Beinhorn made another long distance flight flying from Berlin to Capetown and back. In May 1937 Flugkapitän Seidemann won the *Isle of Man* race while flying a Bf 108 B-1, D-IOSA.

Other entries in this race were D-INKY and D-IVHE. Although a pleasure to fly, there were accidents. On June 2, 1937, a Taifun, W.Nr. 10 001, D-IPSA, crashed beyond repair. On August 5, 1937, a Bf 108 B-1, N.Wr. 325 was written off, while on August 30 another Taifun, W.Nr. 330, was also damaged. In December 1937 another Taifun, D-IBFW, was shipped to Rio de Janeiro, Brazil as part of a promotion tour which eventually ended over New York City on July 5, 1938. Again, the pilot was Otto Brindlinger who covered 26,400 miles (44,000 km) during the course of the tour.

During 1938 some 175 Taifuns were completed as production gained momentum. In January a Taifun won the *Hoggar internationale Sternflug* while in March two Taifun crashes were reported: W.Nr. 1038 on March 3, and W.Nr. 539 on March 31. In June three Taifuns flew to England for the *Isle of Man* race but two were withdrawn subsequent to engine problems. The third, flown by F. Pasquay, placed 5th. During July 1938 Taifuns won the Belgian *Internationale Konigin-Astrid-Rennen* race. From July 2nd to the 6th 1938, another Bf 108 B-1 took second place in the Italian *Raduno del Littorio*.

Meanwhile an important milestone was reached on July 11, 1938, when Prof. Messerschmitt was named Chairman of the Managing Committee and General Director of Messerschmitt A.G. A few weeks later, in August 1938, still another Taifun won the International Flight Competition at Dinard, France.

During October 1938, while Charles Lindbergh was touring the German aviation industry, he was received at Messerschmitt's Augsburg facility. There he inspected the Taifun and on October 21 in Berlin, he became the first foreign pilot to fly the aircraft. Lindbergh reportedly called it "the best plane of its type" he ever flew. Ironically, Lindbergh's praise for the German aviation industry and the Taifun in particular gained him acclaim in Germany but ridicule at home.

In October 1938 ground vibration tests were conducted on a Taifun with experimental wooden wings. The tests were run with retracted and extended flaps. From the resonance curves and the modes of vibration, the permissible speed of the aircraft for retracted flaps was determined to be 325 km/h (202 mph) and for extended flaps 220 km/hr (136 mph). This and all manner of other tests were conducted with the Taifun. Resultingly, during the course of manufacture, a number of modifications were carried out which were usually relegated to internal changes. External modifications were less apparent apart from a minor revision of the rudder mass balance horn. No special designation changes accompanied these alterations, rather, they were routinely instituted on the assembly line as the situation dictated.

The addition of special instruments did, on





Top left: Bf 108 B-1, D-IBMY at Cairo airport for the 1937 Gases race. Top right: This Taifun took part in the 1936 Sewille Sternflug in Spain registered D-IPLD. Above left: A paramilitary Taifun near Vienna during the summer of 1938. Code

1Y+CA appears spurious. Above right: A standard production Bf 108 B-1 circa 1938.

FOREIGN SERVICE Export orders for the Taifun grew in relation to its outstanding achievements prior to the war.

AUSTRALIA A Bf 108 B-1, W.Nr. 992, built in Augsburg on July 6, 1936, was given its Certificate of Airworthiness on June 14, 1937, for operation with Guinea Airways Ltd., bearing registration VH-UZL. The aircraft was stationed at Parafield South Australia where it was used for special charter and emergency duties. Operations continued through March 1940 during which a total of five accidents were recorded. On May 2, 1940, the Taifun was sold to Soerabajasche Motorenhandel, Soerabaya, Netherlands East Indies. No other records are available.

AUSTRIA Four Taifuns were ordered but only one was delivered. It crashed on take-off in late 1937.

BULGARIA Six Taifuns served with the Bulgarian Air Force during WW II.

CHILE At least one Taifun was exported to Chile and served with the *Fuerza Aerea de Chile*.

CZECHOSLOVAKIA The Taifun was only one of many German aircraft impressed into service following the close of WW II.

DENMARK At least one Bf 108 B-1 was registered in Denmark during the mid 1950's.

GREAT BRITAIN In 1937 H. J. Aldington (builder of the British BMW and Frazer-Nash) obtained a franchise for British production but, owing to the worsening politi-

cal climate, the scheme came to nothing. **HUNGARY** Six Bf 108 B-1s were ordered in 1936 and delivered in 1937 along with one additional Taifun. Registered HA-XCA through HA-XCG (LÜH serials 1601 through 1607). In September 1938 all RHAF Taifuns received military markings and serial numbers. G.351 to G.357. On April 10, 1945, another Taifun was obtained directly from the Luftwaffe registered L5+AB.³ After the liberation of Hungary in April 1945, three Taifuns G.351, G.355 and L5+AB flew to Austria. Respectively, they were the 101/I., 101/II. and 101/III. Fighter Groups. A few days later the three surviving Taifuns received new serial numbers; 1 (formerly G.351), "White 2" (ex. G.355) and 3 (ex L5+AB) with the relative color of their lighter group. The last recorded RHAF sortie occurred on April 23, 1945, when "White 2" flew to Raffelding carrying pilots for new Bf109 G-10's. A few days later all RHAF activities came to an end.

ITALY Following the military operations against Yugoslavia in May 1941, the Regia Aeronautica acquired 3 Taifuns but only one was serviceable. This Bf 108 B-2 was given the military number M.M. 001 (Matricola Militare) and transferred to the *Reparto Volo dell'Albania* serving in a liaison capacity until October 30, 1942. On that date the Taifun was transferred to the 1st *Squadriglia Gruppo Autonomo di Volo* based at Centocelle Nord (Rome). It was still on active duty in June 1943 and was probably taken over

by German forces after the armistice on September 8, 1943. On March 22, 1945, at the instigation of the OKL, it was agreed to furnish the III. Ital. Jagdgruppe operating with the A.N.R. (Aeronautica Nazionale Repubblicana) four Bf 108's and one Klemm Ki 35.

JAPAN At least one Bf 108 B-1 was acquired for use with the Manchurian Air Line.

RUMANIA The Rumanian Air Force reportedly received a total of 9 Taifuns.

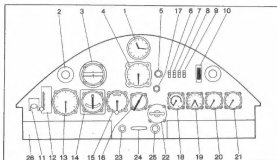
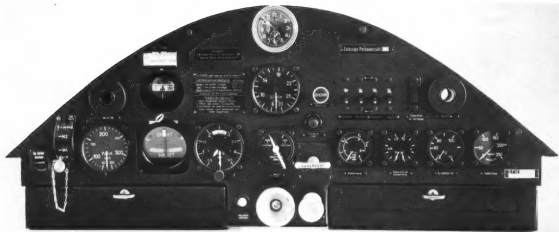
SPAIN At least one example of the Taifun reached Nationalist Forces in Spain.

SWEDEN On March 29, 1945, after making a navigational error in bad weather, a Bf 108 B-1, W.Nr. 2158, L1+CF⁴, landed at Limhamn. The aircraft was bought in 1949 and registered SE-BPZ.

USA A little known transaction involving a Taifun occurred between the German government and the United States in 1939. In that year the United States government purchased a Bf 109 B-1 for use by the American Military Air Attache in Berlin. Assigned the U.S. military designation XC-44 (X=experimental/C=cargo) this Taifun was operated by the U.S. Embassy in Berlin until it was seized by German authorities in 1940. Two additional Taifuns were reportedly operated by the U.S. Navy attache, but all details are lacking.

USSR Reportedly two Taifuns were sold to

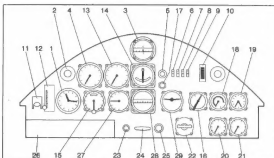
3 KGR:26 V5
4 Staff V.L.G. 1



PANEL FOR STANDARD Bf 108 B-1

- 1 CLOCK
- 2 CABIN VENTS
- 3 COMPASS
- 4 AIRSPEED INDICATOR
- 5 FIRE EXTINGUISHER
- 6 LANDING LIGHT SWITCH
- 7 NAVIGATION LIGHTS
- 8 INSTRUMENT PANEL LIGHTS
- 9 HEATER SWITCH
- 10 HEATER OPERATION LAMP
- 11 ELECTRICS SWITCH
- 12 MAGNETO SWITCH
- 13 TACHOMETER
- 14 TURN AND BANK INDICATOR
- 15 FINE AND COURSE ALTIMETER
- 16 FUEL RESERVE INDICATOR SWITCH
- 17 HAND PUMP FOR FUEL RESERVE GAUGE
- 18 FUEL GAUGE
- 19 OIL AND FUEL PRESSURE GAUGE
- 20 OIL TEMPERATURE GAUGE
- 21 AIR PRESSURE GAUGE
- 22 FUEL HAND PUMP
- 23 STARTER SWITCH
- 24 HAND GRIP FOR AIR VENTILATION
- 25 ENGINE PRIME PUMP
- 26 MAP CONTAINERS - BOTH SIDES

NOTE: NUMEROUS VARIATIONS OF INSTRUMENTS AND THEIR PLACEMENT EXISTED THROUGHOUT PRODUCTION OF THE TAUFW



IFR PANEL FOR Bf 108 B-1s

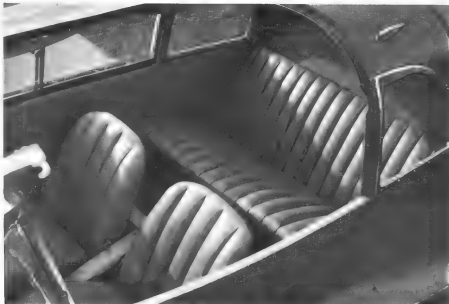
- 1 CLOCK
- 2 CABIN VENTS
- 3 COMPASS
- 4 AIRSPEED INDICATOR
- 5 FIRE EXTINGUISHER
- 6 LANDING LIGHT SWITCH
- 7 NAVIGATION LIGHTS SWITCH
- 8 INSTRUMENT PANEL LIGHTS
- 9 HEATER SWITCH
- 10 HEATER SWITCH OPERATION LAMP
- 11 ELECTRICS SWITCH
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- 13 TACHOMETER
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- 15 FINE AND COURSE ALTIMETER
- 16 FUEL RESERVE INDICATOR SWITCH
- 17 HAND PUMP FOR FUEL RESERVE GAUGE
- 18 FUEL GAUGE
- 19 OIL AND FUEL PRESSURE GAUGE
- 20 OIL TEMPERATURE GAUGE
- 21 AIR PRESSURE GAUGE
- 22 FUEL HAND PUMP
- 23 STARTER SWITCH
- 24 HAND GRIP FOR AIR VENTILATION
- 25 ENGINE PRIME PUMP
- 26 MAP CONTAINERS - BOTH SIDES
- 27 VARIOMETER
- 28 SPERRY GYROCOMPASS
- 29 SPERRY ARTIFICIAL HORIZON

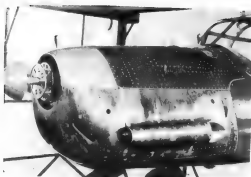
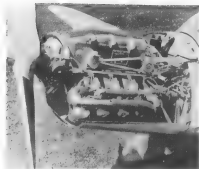




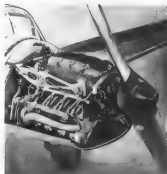


Entry into the cabin was accomplished via the two large clamshell doors containing the plexiglas side and roof windows and their sun shades in an unusual forward-hinged arrangement. Leather upholstery, padded headliner and side panels reflected the state of the art in luxury light planes of the late 1930's. Canopy was protected by a large rubber bumper which made contact with the rear side window as seen in the illustration to the left.



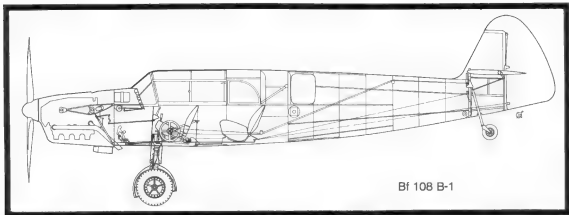


Four views of the nose reveal the beautifully contoured cowling containing the 240 hp Argus 10 C engine. Several two-bladed props were used by Taifuns including the wooden fixed-pitch Schwarz type (top left), the wooden Heine model (right) and the metal Me P 7 variable-pitch assembly shown left.

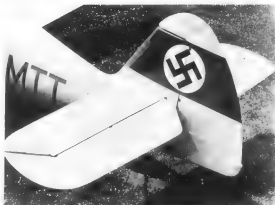
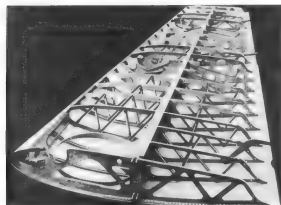
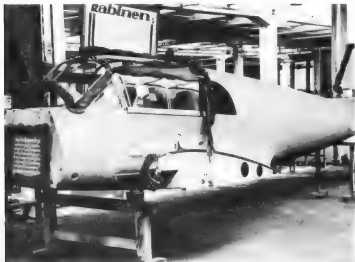


In May 1936 this Bf 108 B-0, D-IONO, was carefully stowed inside the cavernous Zeppelin Hindenburg preparatory to its transatlantic crossing to South America. Pilot of this highly polished Taifun was the renowned Otto Bindingner who subsequently flew this aircraft over the Andes.

Four photos to the right illustrate construction details. Top left shows one of the first Taifuns completed. Bearing garlands and the inscription on the firewall. "Farewell you splendid 108". Top right photo shows the lightweight all metal monoplane construction of the fuselage. Right: Port wing under construction. Note the single spar running the full length of the wing. Far right: Close-up of Willy Messerschmitt's personal Taifun, D-IMTT, W Nr. 1345. Although the Bf 108 was a mass production machine, it was assembled with care and exceptional attention to detail.



Bf 108 B-1





Some thirty-eight years separate these two Taifuns. The top photograph of Bf 108 B-1, 'India-Oscar-India-Oscar' (not numerical 1010), presents a serene and graceful image high above the Alps. The magnificent Bf 108 D-1, shown below at the MBB factory, Manching, on July 21, 1974, carries the same registration but is not the same aircraft as above. Noteworthy are the additional avionic antenna and large Argus variable-pitch prop with its nonadjustable wind vanes.





Top: Another photo of the original Bf 106 B-1, D-1010, shown opposite. Early Taifuns were painted color 05 cream, overall with some examples having black nose trim. Below: This Bf 106 D-1, D-EFPT, was built in 1943 and was captured by British Forces at an airfield near Oslo, Norway. It was later acquired by Swedish owners and flew as SE-BZN until it arrived back in Germany in damaged condition, in 1969. Now beautifully restored in the colors of Bavaria, it is one of the best Taifuns in Europe. Note that this example has the revised fin mass balance horn found on many late production Taifuns.





The U.S.A.A.F. brought this Bl 108 B-2, W.Nr. 8378, to the United States for evaluation. Assigned the Foreign Equipment number, FE-4610, it was flown for a brief time at Wright Field. The unusual color scheme and national markings shown here are not authentic. Currently, it is owned by Edward Maloney.



Above, Below & Centerspread: Three photographs of what is surely the best preserved Tailfin in North America. Imported from Switzerland and subsequently restored by Hans Gerstl of Charlottesville, Virginia, this Bf 108 D-1, W.Nr. 3059, is currently registered N-2231 and owned by the Confederate Air Force of Texas.

The two shades of green chosen to represent its wartime colors are closer to the late war camouflage colors than the two greens actually prescribed in 1942 when the aircraft was manufactured. Nevertheless the restoration is highly attractive and commendably close to official specification.









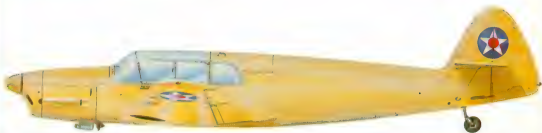
Bf 108 B-1 Operated by the German Embassy in London, 1939.



Bf 108 B-2 Attached to the Luftdienst (Air Service), 1940.



Bf 108 B-2 trop Employed by the Luftwaffe at Cagliari, Sardinia, 1942.



XC-44 (Bf 108 B-1)

Operated by the U.S. Military Air Attache, Berlin, 1939. Black German registration letters omitted pending confirmation.



Bf 108 B-2

Werk Nummer 5061, Flown to neutral Switzerland on April 27, 1945.



NORD 1000 (Bf 108 B-2)

Serial Number 42, served with the French Air Force, 1945.



continued from p. 4

occasion, alter the designation. The **Bf 108 B-1s** (s = schlechthetter/bad weather) was a Taifun equipped with IFR operations.

With the rapid expansion of the Luftwaffe during the late 1930's, it came as little surprise that the Taifun was selected for military liaison duties. Under the designation **Bf 108 B-2**, the Taifun went military, serving as a staff liaison and transport within most of the active Luftwaffe units. Apart from deletion of the folding wing, this version was essentially identical to the civil model. Production during 1939 fell from the previous year with only 147 being delivered.

In July, just prior to the opening of World War II in Europe, a specifically modified Taifun, fitted with a supercharged 270 hp

Hirth HM 508 C, attained a new unofficial world altitude record of 29,766 feet (9,075 m). Later Messerschmitt formulated plans to install a 400 hp Hirth HM 512A for an even greater altitude attempt; however, with the advent of war this plan was aborted.

In 1940 production of the Taifun accounted for only 77 machines, these being entirely Bf 108 B-2's. With the fall of France it was decided to transfer production of the Taifun to SNCA du Nord at Les Mureaux in German occupied France. Consequently, only 59 Taifuns were manufactured in Regensburg during 1941 and 58 in 1942 when all production was transferred to France.

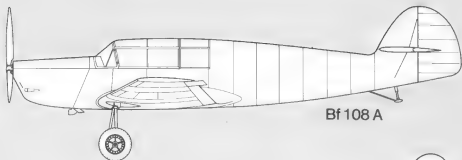
In January 1941 Messerschmitt introduced another variant of the Taifun, the **Bf 108 D-1** powered by a 240 hp Argus As 10C or As

10R. This version incorporated various modifications and additions including an Argus variable-pitch propeller, a rain shield, improved cockpit ventilation and revision of the fuel supply system. Improvements also were made to the starter and the wing; and a vanometer was added. Initially this model of the Taifun was manufactured in Regensburg but, with the completion of 131 aircraft, production was transferred to SNCA du Nord in France.

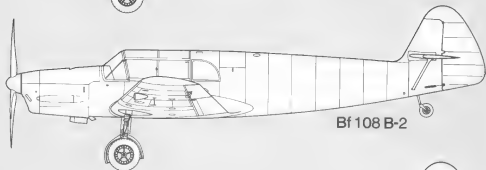
Following the German advance into North Africa instructions were issued in August 1941 for modification of Taifuns which were

Continued on p. 26

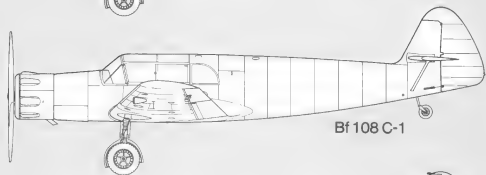




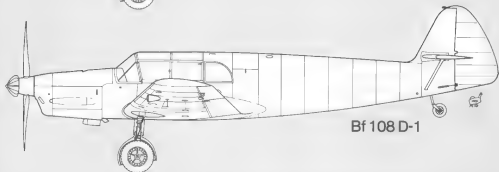
Bf 108 A



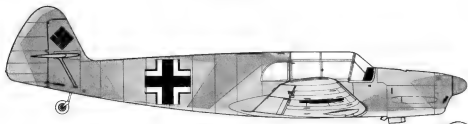
Bf 108 B-2



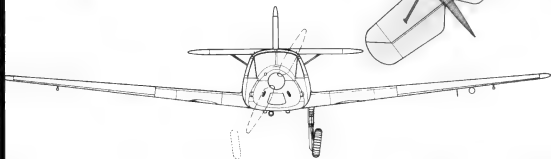
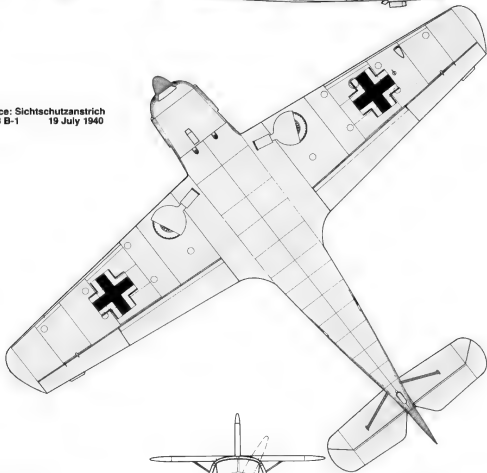
Bf 108 C-1

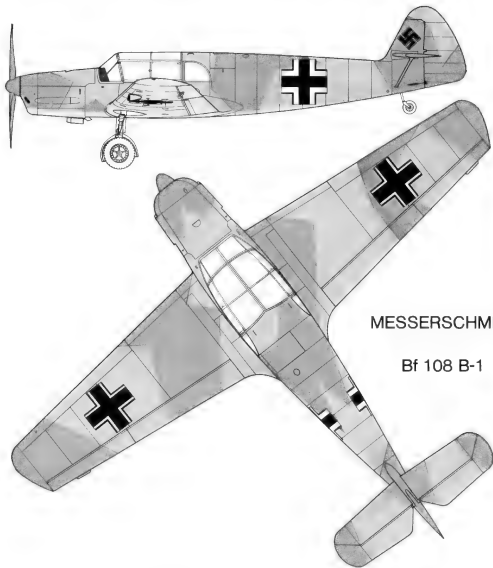


Bf 108 D-1



Source: Sichtschutzanstrich
8-108 B-1 19 July 1940





MESSerschmitt

Bf 108 B-1



Color 70
Black Green



Color 71
Dark Green



Color 65
Light Blue



Color 22
Black



Color 21
White



Three photos of a Bf 108 B-2 trop, KG-EM, serving with an unknown unit in North Africa. The comical emblem shown in the lower right photo with its enigmatic letters "EFTA EINAK" contained within the design; probably denoting an aircraft transport unit attached to the German Africa Corp.

CIVIL COLOR SCHEMES

Principally three civil schemes were employed: a cream color, a light gray and dark blue-gray. All paints were semi-gloss lacquer. The cover photograph is typical, representing the cream color found on most German light planes between 1935 and 1937. Somewhat later this cream color became formalized as RLM Color 05 Lasur (Cream) and was generally associated with wooden surfaces. In 1936 a light gray color appeared on light planes but was withdrawn by mid 1938. Willy Messerschmitt's personal Taifun (see p. 20) D-IMTT, carried this color which was officially known as Hellgrau (Light Gray). About mid 1938 a paramilitary color was created which was applied to various single-engined aircraft including the Bf 108. Somewhat similar to, yet differing from Color 24, it is best described as a dark blue-gray. The Taifuns illustrated at the top of page 5 are typical of this prewar color. Registration letters appearing on the fuselage and wings, denoting the nationality and B1 classification,

were applied in black (for cream and gray colored aircraft) or cream (for dark blue-gray colored aircraft).

German national colors were displayed on the vertical tailplane. Initially, the black-white-red strips of the state were applied across the starboard side while the swastika motif appeared on the port side. In June 1936 the swastika became mandatory on both sides.

MILITARY COLOR SCHEMES Soon after the Taifun was selected for military duties, its civil color scheme was discarded. As recounted above, the Taifun received the paramilitary dark blue-gray² beginning about mid 1938 and continuing through September 1939.

Prior to the outbreak of war in Europe, Taifuns allocated to military units received a revised paramilitary registration beginning with the letters "WL" (Wehrmacht Luft) followed by the usual B1 classification letters. The swastika motif was modified by paint-

ing out the red band and leaving only a narrow white outline to the black swastika.

In July 1940 a more formal military painting guide was drawn up by Messerschmitt and approved by the RLM. The illustrations found on pages 22 and 23 depict the prescribed color placement. By this time too, the WL-registration code had been withdrawn, giving way to a random letter code, in black. During the course of the war many Bf 108's dispensed with random codes altogether while others utilized the alphanumeric codes of certain units. The two uppersurface colors, Color 70 Black Green and Color 71 Dark Green, were the primary camouflage colors for the European theater. In August 1944 directives were issued for the late war colors 81/82/83. As applied to the Taifun, at least one example was finished in a medium brown-violet with dark green mottle (see p. 19).

Taifuns which operated in North Africa were finished in the so-called "tropen" colors; 78 Light Blue, 79 Sand Yellow and

² Munsell approx. 10B 3/1



Right: A standard Bf 108 B-2, NF+?? employed as a courier aircraft in what appears to be a winter locale while still painted in desert camouflage. It is quite possible that this photo was taken on the Eastern Front. Most front line fighter units, on all fronts, used the Taifun for all manner of communications



80 Olive Green. The Bf 108 B-2 trop illustrated on page 24 is typical. Other recorded examples received only colors 78 and 79 without the 80 Olive Green mottle.

Additionally, all aircraft were given a 450 mm white tail band while Taifuns destined for the Eastern Front received a 450 mm Yellow tail band. Various units emblems and other designs occasionally were painted on Taifuns.

The Taifun's interior was appointed in the best tradition of luxury aircraft with leather seats, deep carpeted flooring, imitation leather side walls and upholstered headliners. The instrument panel was a matt black-gray while the interior of the fuselage was generally left unpainted apart from protective coats of corrosion-resistant clear lacquer.

WERK NUMMERN According to surviving records the vast majority of Taifuns retained their original three, four and five digit serial numbers. During 1944 a concerted effort was made to bring all aircraft serial numbers into a six digit format. In many instances, older numbers were expanded to a full six digits by the addition of one or more numbers preceding the original work number. After a careful check of documents, the only instance where a Taifun was allocated a six digit serial number occurred in the 730 000 block. Interestingly this block sequence was also utilized by the Fw 190 G-3, the Bf 110 G-4 and the Ju 88 A-6 series.

MARKINGS German national markings carried by the Taifun consisted of an 800 mm cross both on the fuselage and underwing, a 900 mm upperwing cross and a 300 mm swastika in the fin. The placement and size of markings varied slightly as our photographs illustrate.

THE OFFICIAL MONOGRAM PAINTING GUIDE TO GERMAN AIRCRAFT, 1935-1945 (Monogram Aviation Publications, 1980) by Kenneth A. Merrick and Thomas H. Hitchcock is recommended for accurate color chips of all the color notations mentioned here and on page 23.

5 Late war fuselage crosses measured 750 mm

Feldwebel Hans Pichler poses in front of his Bf 108 B-2 somewhere on the Eastern Front. Under the port wing can be seen mail sacks, yet another important service undertaken by the Taifun in wartime.



Oberst Werner Mölders (left) chats amicably with Oberstleutnant Adolf Galland somewhere on the Russian front a few months before the former's accidental death.





continued from p.20

to serve in the sandy clime of the Mediterranean. These aircraft were designated "Tropen", respectively the **Bf 108 B-2 trop** and the **Bf 108 D-1 trop**. Modifications included a sand and dust shield canister for the engine air intake, a filter for the oil cooler, improved cockpit ventilation, generator ventilation, sun shields for the inside as well as dust covers for the outside. Additionally, leather boots were fitted over movable components such as the tailplane adjustment spindle, the landing gear and retraction linkage. The auxiliary fuel and oil tanks were relocated to the interior of the fuselage on the right side of the back seat. The safety valve for the auxiliary fuel tank was discontinued and each model was equipped with a special cooling system lubricant.

FRENCH PRODUCTION

As recounted earlier, production of the Taifun was transferred to the SNCA du Nord at Les Mureaux in German occupied France during 1942. In that year, the French produced 50 aircraft supplementing the 58 produced at Regensburg. In 1943 the French produced an additional 108, but 1944 saw only 12 being delivered to the Luftwaffe.

Following the liberation of France, it was decided to continue production of the Bf 108 using available German Argus As 10C engines. Known as the **Nord 1000**, 285 additional examples were produced.

In spite of French reluctance to build and operate aircraft designed in Germany, they

recognized the fine qualities offered by the Taifun and, therefore continued production, utilizing French engines once stocks of the German Argus had dried up. Known to the French as the "Pingouin" (Penguin), four versions were projected but only two were built: the **Nord 1001** and **Nord 1002**. The former was powered by the 240-hp Renault 6Q-10A engine while the latter was fitted with the improved Renault 6Q-11. These models served both the French Air Force and the French Naval Air Service in the 1950s. The **Nord 1003** was a proposed experimental version with a 240 hp Potez 6D engine while the **Nord 1004** was slated to receive an up-rated Potez developing 305 hp.



Left: Few photos exist of the sole BF 109 C-1, D-IELE, powered by a 160 hp Siemens Sh 14 A-4. It was later refitted with a standard As 10C, but not before Otto Berndinger used it to fly newsreels of the Winter Olympics from Berlin to Stockholm in 1936.



Above: Photographed in West Germany, this BF 108 B-2, D-EFFI, displays several modern avionic antennas. Right: Oberleutnant Horten of JG 26, prepares to take off, while his Unterfeldwebel passenger occupies the right seat. Note the lack of wheel covers. Lower left: One of the last remaining Taifuns in Switzerland, this BF 108 D-1 exhibited outside the Zurich airport shows well the stationary fins of the Argus variable-pitch prop. Lower right: Maintenance of one of JG 26's BF 108 B-1's was a relatively simple matter.





This Bf 108 B-1 has been impressed into the Luftwaffe during the late 1930's and carries the paramilitary "WL" registration.



Many Bf 108 B-2's carried the triangular emblem of the "Luftdienst". This organization carried out various functions including supply missions.



Above left: Another example of the early wartime use of the Taifun for paramilitary roles is this Bf 108 B-1 registered WL-IXED. Above right: Not often illustrated is the tropical model with the Argus prop; the Bf 108 D-1 trop. Lower:



Obli. Horten, of JG 26, prepares for takeoff at Caffier sometime in 1940 aboard a Bf 108 B-2 without wheel covers.



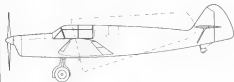
PRIZES OF WAR From 1938 to 1939 the German Embassy in England operated two Taifuns: D-IDBT, W.Nr. 1660 and D-IJHW, W.Nr. 3701 (Bf 109 B-1s). Although a German Embassy aircraft, D-IDBT was registered to Margarethe Güttermann and, in September 1939 with the outbreak of war in Europe, this Taifun was seized by British authorities and handed over to H.J. Aldington of A.F.N. Ltd. as G-AFZO. Soon thereafter this Taifun was impressed into the RAF and was to have received the serial number ES 955 but was mistakenly painted as ES 995. The other Taifun operated by the German Embassy, D-IJHW, was obtained by more unorthodox methods. German authorities were prepared to fly D-IJHW back to Germany early in September 1939, but before the aircraft could be flown out, a new tire had to be installed replacing one that had mysteriously gone flat. When the replacement was about to be mounted, it was learned that the tire valve had vanished. Moreover, when the German mechanics returned with another valve they were shocked to discover that the hangar doors were barred by a large shipping container. While they went about removing the container, the other tire suddenly developed a nail puncture and was quite flat! Without replacements on hand and before others could be found, England was at war with Germany and D-IJHW was duly impressed receiving RAF serial AW 167.

After tours with various RAF units, both Taifuns, which were known in the RAF as Aldons, were demobilized at Heston on September 26, 1946. Both machines were then passed to Mr. H.J. Aldington, later receiving the British registration G-AFRN (ex D-IDBT) and G-AFZO (ex D-IJHW). These British registrations were in fact somewhat of a masquerade. The registrations were duplicates of two assigned earlier! G-AFRN had been previously allocated to another Taifun, W.Nr. 2039, which had been imported by Aldington in 1939. This aircraft received the RAF serial DK 280 when it was impressed in May 1941, later being lost in a crash on August 17, 1944. G-AFZO had been previously assigned to D-IDBT in September 1946! Finally, in April 1950 W.Nr. 1660 (ex D-IDBT) was sold to M. Manger in Switzerland and registered as HB-ESL. In 1955 it returned to Germany as D-EDIH. Also in April 1950, W.Nr. 3701, (ex D-IJHW) was sold to A. Vallie in Switzerland and registered as HB-ESM.

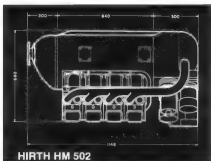
Apart from the three Taifuns just mentioned, the RAF acquired a number of additional Bf 108's after the war including these with RAF serial numbers: VM 495, VM 502, VM 508, VM 851 to 862.

The United States acquired a few Taifuns following the war. Only one example is known to have been retained by the

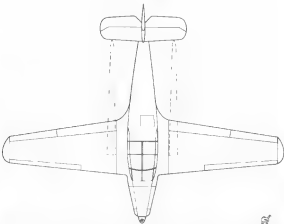
U.S.A.A.F. and shipped to America, a Bf 108 B-2, W.Nr. 8378. Upon its arrival at Wright-Patterson it received the Foreign Equipment number FE-4610, and is currently owned by the noted aviation enthusiast Edward T. Maloney.



**Messerschmitt Bf 108 B
with Hirth HM 502 B**



HIRTH HM 502





FOREIGN REGISTER

AUSTRIA The sole Bf 108 B-1, OE-DIX, shown left, was delivered in 1937. Opposite above: **HUNGARY** one of seven Bf 108 B-2's acquired before the war. This particular example survived the conflict and flew to Austria in April 1945. Originally HA-XCE, LUH-Nr. 1605, it later became G. 355 and, still later it was repainted as "White 2" after March 15, 1945. Opposite Lower Left.

JAPAN At least one Bf 108 B-1 was acquired by the Manchurian Air Lines registered J-BACC and adorned with the five olympic rings on its fin. Opposite Lower Right: **SPAIN** This Bf 108 B-1 survived the Spanish Civil War. Coded. 4444, it later became 23 # 2.

Continued from p. 5

the Soviets as part of the 1939 non-aggression pact

SWITZERLAND A total of 12 Taifuns were purchased prior to the outbreak of war in 1939.

YUGOSLAVIA A dozen Taifuns were exported to Yugoslavia and served with the Yugoslavian Air Force until the country was overrun by Italian forces



CHILE This Bf 108 B-1 carries the inscription "Carlos del Campo Rivero" across the vertical tailplane.

DENMARK Photographed at Hamburg, West Germany late in the 1950s is this Bf 108 B-1, OY-AIH.



CZECHOSLOVAKIA Photographed in October 1945 at Prague-Kbely is this Bf 108 B-2, D-55 (D=Transport Command).

ENGLAND Known to the RAF as the Aldon, this Bf 108 B-1, W.Nr. 2039, was manufactured in 1939.





Right: This Bl 108 B-1 photographed in 1957 at Burlington, W. Va., and carrying U.S. registration, NX 54208, was purchased by Curt Heidenreich from Leo D. Patterson (shown on plane) in the early 1960's. Patterson acquired the Tailfin while in North Africa where it had previously been operated by the British. It was restored at the Williamsport Technical Institute in Pennsylvania but current status and location are unknown.



WEIGHTS AND PERFORMANCE STATISTICS

Type		Bf 108 B-1	Bf 108 B-2	Bf 108 D-1
Role		Touring	Liaison	Liaison
Seating		4	4	4
Engine Type		As 10 C-3	As 10 C-3	As 10 R
5 Min Takeoff MP	PS(HP)	240/2000 RPM	240/2000 RPM	240/2000 RPM
30 Minutes	PS(HP)	220/1940 RPM	220/1940 RPM	220/1940 RPM
Cruise	PS(HP)	200/1880 RPM	200/1880 RPM	200/1880 RPM
Prop type		Schwartz light wood	Me P 7	Argus
Diameter/blade number	mm (ft-in)	2350/2 (7-8½)	2350/2 (7-8½)	2350/2 (7-8½)
Fuel supply/grade	L(US gal)	219 (58) B4	219 (58) B4	219 (58) C3
Empty weight	kg (lb)	880 (1,940)	880 (1,940)	951 (2113)
Equipped weight	kg (lb)	500 (1,102)	500 (1,102)	438 (973)
Crew weight	kg (lb)	80 (176)	80 (176)	77 (170)
Passengers (3)	kg (lb)	240 (529)	240 (529)	230 (510)
Fuel weight	kg (lb)	161 (355)	161 (355)	161 (355)
Lubricants weight	kg (lb)	14 (31)	14 (31)	14 (31)
Takeoff weight	kg (lb)	1380 (3,042)	1380 (3,042)	1380 (3,065)
Range at cruise	km (mi)	1000 (600)	1000 (600)	1000 (600)
Maximum speed	km/h (mph)	303 (188)	303 (188)	290 (180)
Cruise speed	km/h (mph)	265 (165)	265 (165)	265 (165)
Landing speed	km/h (mph)	85 (53)	85 (53)	85 (53)
Takeoff distance	m (ft)	185 (611)	185 (611)	180 (600)
Landing distance	m (ft)	130 (429)	130 (429)	130 (429)
Climb from 0 m to	m (ft)	1000 (3,300) 4.00 min 2000 (6,600) 9.5 min 3000 (9,900) 16.70 min 4000 (13,200) 29.00 min	1000 (3,300) 3.10 min 2000 (6,600) 7.00 min 3000 (9,900) 14.70 min 4000 (13,200) 28.00 min	1000 (3,300) 2.9 min 200 (6,600) 6.3 min 3000 (9,900) 10.0 min 4,000 (13,200) 30.7 min
Service ceiling	m (ft)	4800 (15,840) 46.00 min	4800 (15,840)	6102
Fuel consumption at cruise	L/hr (gal/hr)	60.5-71.9 (16-19)	60.5-71.9 (16-19)	60.5-71.9 (16-19)
Flight endurance		3 hr - 45 min.	4 hrs	4 hrs

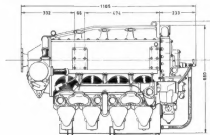
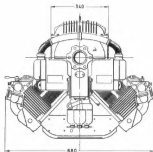
SPECIFICATIONS

Type		Bf 108 A	Bf 108 B-1	Bf 108 C	Bf 108 D-1
Wing span	mm (ft-in)	10,312 (33-9 7/8)	10,612 ¹ (34-9 7/8)	10,612 (34-9 7/8)	10,612 (34-9 7/8)
Length overall	mm (ft-in)	8060 (26-5 3/8)	8291 ² (27-2 3/8)	8206 ³ (27-1 3/8)	8292 ³ (27-5 3/4)
Ground length	mm (ft-in)	2100 (7-2 3/4)	2020 (6-7 1/2)	2020 (6-7 1/2)	2020 (6-7 1/2)
Stabilizer span	mm (ft-in)	3250 (10-7 7/8)	3240 (10-7 1/2)	3240 (10-7 1/2)	3240 (10-7 1/2)
Prop diameter	mm (ft-in)	2350 (7-8 1/2)	2350 (7-8 1/2)	2350 (7-8 1/2)	2350 (7-8 1/2)
Wheel track	mm (ft-in)	1600 (5-2 7/8)	1492 (4-11 7/8)	1492 (4-11 7/8)	1492 (4-11 7/8)
Surface area	m ² (ft ²)	16,000 (172.16)	16,400 (176.46)	16,400 (176.46)	16,400 (176.46)
Seating		2	4	4	4

1 Other BFW dimensions included: 10500 mm, 10610 mm, 10620 mm.

2 Other BFW dimensions included: 5300 mm (27 ft 6 1/4 in).

3 Approximate dimension.



ARGUS As 10 C-3

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Kenneth A. Merrick & Thomas H. Hitchcock

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